

Notice of Allowability

Application No.

10/006,660

Applicant(s)

IIJIMA, CHIYOAKI

Examiner

Matthew Landau

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed July 7, 2004.
2. ☒ The allowed claim(s) is/are 1, 3-25 and 29-31.
3. ☒ The drawings filed on 07 July 2004 and 16 April 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 7/9/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Tom Thomas
TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jude Cooney (Reg. #54,045) on September 29, 2004.

The amendments to the claims are as follows:

1. (Currently Amended) A liquid crystal display, comprising:
 - a liquid crystal display panel formed of liquid crystals sandwiched between a pair of opposing substrates, and including pixels having a plurality of sub-pixels each corresponding to different colors, the sub-pixels having outer edges;
 - an illumination device provided to an opposite side of the liquid crystal display panel in relation to an observation side that illuminates the liquid crystal display panel with illumination light;
 - a transfective layer disposed on the opposite side of the liquid crystals in relation to the observation side, the transfective layer including for each sub-pixel a reflective portion and a transmissive portion that transmits the illumination light formed thereto, each reflective portion having an outer edge disposed at at least one of the outer edges of the corresponding sub-pixel, at least one sub-pixel out of the plurality of sub-pixels having a transmissive area with a

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first dimension, and another sub-pixel out of the plurality of sub-pixels having a transmissive area with a second dimension, the first dimension being different from the second dimension;
and

a color filter provided corresponding to each of the sub-pixels that transmits light of a wavelength corresponding to a color of each sub-pixel.

8. (Currently Amended) The liquid crystal display according to claim 7 ~~A liquid crystal display, comprising:~~

~~a liquid crystal display panel formed of liquid crystals sandwiched between a pair of opposing substrates, and including pixels having a plurality of sub-pixels each corresponding to different colors, the sub-pixels having outer edges;~~

~~—— an illumination provided to an opposite side of the liquid crystal display panel in relation to an observation side that illuminates the liquid crystal display panel with illumination light;~~

~~—— a transfective layer disposed on the opposite side of the liquid crystals in relation to the observation side, the transfective layer including for each sub-pixel a reflective portion and a transmissive portion that transmits the illumination light formed thereto, each reflective portion having an outer edge disposed at at least one of the outer edges of the corresponding sub-pixel, at least one sub-pixel out of the plurality of sub-pixels having a transmissive area with a first dimension, and another sub-pixel out of the plurality of sub-pixels having a transmissive area with a second dimension; and~~

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~~_____ a color filter provided corresponding to each of the sub-pixels that transmits light of a wavelength corresponding to a color of each sub-pixel;~~

~~_____ the transmissive portion being an opening portion formed in the transfective layer corresponding to each of the sub-pixels;~~ the opening portion comprising opening parts of generally the same dimension, wherein a number of opening parts depends on the dimension of the transmissive area at the sub-pixels.

Cancel claims 26-28

Election/Restrictions

Claims 1 and 10 are directed to allowable products. Pursuant to the procedures set forth in the Official Gazette notice dated March 26, 1996 (1184 O.G. 86), claims 9 and 11-7, directed to a non-elected species, previously withdrawn from consideration as a result of an election of species requirement, are now subject to being rejoined. Claims 9 and 11-17 hereby rejoined and fully examined for patentability under 37 CFR 1.104.

Since all claims previously withdrawn from consideration under 37 CFR 1.142 have been rejoined, the restriction requirement made in the Office action mailed on February 3, 2003 is hereby withdrawn.

Drawings

The drawings were received on July 7, 2004. These drawings are acceptable.

Allowable Subject Matter

Claims 1, 3-25, and 29-31 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding to claim 1, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including each reflective portion having an outer edge disposed at at least one of the outer edges of the corresponding sub-pixel, at least one sub-pixel out of the plurality of sub-pixels having a transmissive area with a first dimension, and another sub-pixel out of the plurality of sub-pixels having a transmissive area with a second dimension, the first dimension being different from the second dimension.

Regarding claim 10, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including each sub-pixel having outer edges, the transflective layer including a reflective area for each sub-pixel, each reflective area having an edge disposed at at least one of the edges of the corresponding sub-pixel.

Regarding claim 18, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including a transmissive portion of at least one sub-pixel of the plurality of sub-pixels having a first dimension and a transmissive portion at another sub-pixel having a second dimension, the first and the second dimensions differing, and at least one color pigment layer is formed over an entirety of an area overlapping the transmissive area in a planar manner and an area overlapping the reflective area in a planar

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manner, and at least one color pigment layer not being formed at a part of an area overlapping the reflective area in a planar manner.

Regarding claim 23, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including a first reflecting area that reflects light incident from the first substrate, the first reflecting area including an outer edge substantially aligned with at least one of the outer edges of the first color filter; a second reflecting area that reflects light incident from the first substrate, the second reflecting area including an outer edge substantially aligned with at least one of the outer edges of the second color filter; and the second transmissive area transmitting light therethrough and being a different size than the first transmissive area.

Regarding claim 29, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including the first reflecting area including an outer edge substantially aligned with at least one of the outer edges of the first color filter; the second reflecting area including an outer edge substantially aligned with at least one of the outer edges of the second color filter; and the second transmissive area being a different size than the first transmissive area.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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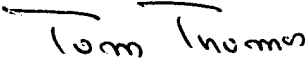
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okumura et al. (US Pat. 6,707,519) discloses a liquid crystal display device comprising a color filter over a transfective layer, wherein at least one outer edge of the reflective portions of the transfective layer align with at least one outer edge of the corresponding sub-pixel areas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


TOM THOMAS
SUPERVISORY PATENT EXAMINER
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Matthew C. Landau

Examiner

September 30, 2004